

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number  
**WO 2004/052491 A1**

(51) International Patent Classification<sup>7</sup>: B01D 3/14,  
3/42, C10G 7/00, 7/12

(74) Agent: FESSENMAIER, Martin; Rutan & Tucker, LLP,  
611 Anton Blvd., 14th Floor, P.O. Box 1950, Costa Mesa,  
CA 92626 (US).

(21) International Application Number:

PCT/US2002/038552

(22) International Filing Date: 4 December 2002 (04.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): FLUOR CORPORATION [US/US]; One Enterprise Drive, Aliso Viejo, CA 92656 (US).

(72) Inventors; and

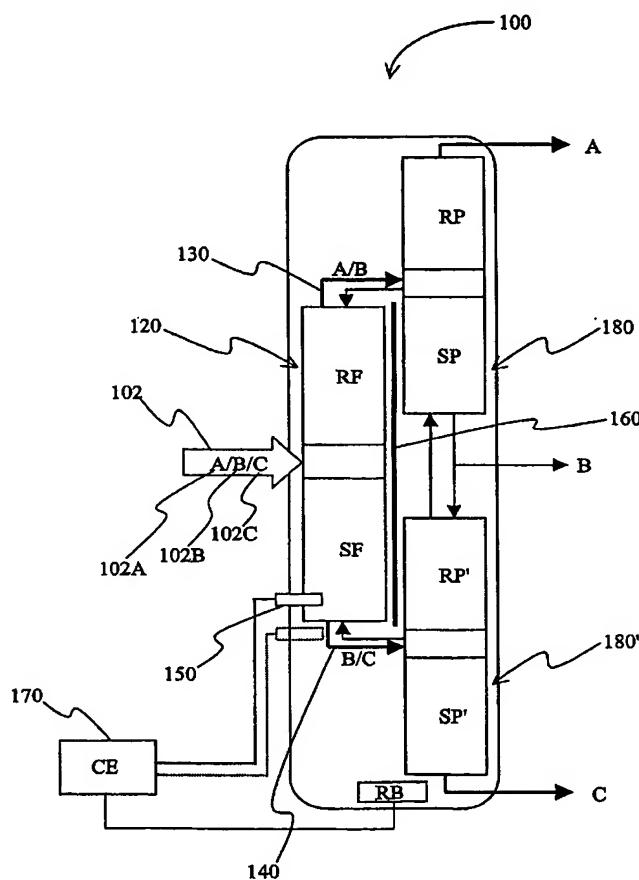
(75) Inventors/Applicants (for US only): KISTER, Henry [US/US]; Fluor Corporation, Engineering Building, One Fluor Daniel Drive, Aliso Viejo, CA 92656 (US). STUPIN, Walt [US/US]; Fluor Corporation, Engineering Building, One Fluor Daniel Drive, Aliso Viejo, CA 92656 (US).

(81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK,

*[Continued on next page]*

(54) Title: IMPROVED DISTILLATION SYSTEMS



**(57) Abstract:** A differential vapor pressure (DVP) cell (150) is disposed in a divided wall column (100) that receives a feed comprising a first (102A), second (102B), and third (102C) component. A separation section (120) on the feed side of the divided wall column separates the feed in a vapor comprising the first and second component, and a liquid comprising the second and third component. The DVP cell is disposed in the divided wall column at a level below the point where the feed enters the column, and the DVP cell measures the concentration of the first component.

WO 2004/052491 A1